

Fungicide, Nematicide and Bactericide Table

The following information will help you interpret the Fungicide, Nematicide, and Bactericide Table:

Restricted or Cancelled Pesticides

Certain formulations, uses, or amounts of the pesticide compound have been restricted (R) or canceled (C). Check a current label (the label of the product to be purchased) to determine which are restricted or general uses. Pesticides or pesticide uses which are restricted require the applicator to be certified or working under supervision of a certified applicator.

Common Names

USDA, and later EPA, have assigned most pesticide chemicals an official common name. This name has been listed where possible. It should not be capitalized.

Other Names

Fungicides, bactericides, and nematicides originate from a wide range of compounds and are classified according to use: fungicide (F), nematicide (N), or bactericide (B).

Toxicity Category and LD₅₀ Values

When pesticides are registered, the Environmental Protection Agency uses the acute LD₅₀ values to determine the toxicity category and the words or symbols which must be placed on the label. The categories assigned in the following table are based on information available and may not reflect EPA's toxicity category.

LD₅₀ is the dosage at which one-half of the test animals are killed. Usually rats are tested, although mice or rabbits may be used. LD₅₀ is measured in milligrams of chemical being tested per kilogram of animal (mg/kg). One part per million (ppm) is equal to one mg/kg. LD₅₀ is usually determined for the technical material rather than the formulated product. The higher the LD₅₀, the less toxic the material. LC₅₀ is the lethal concentration at which 50% of test animals would be killed.

Chemicals may be tested by mouth (oral), by skin (dermal), or inhalation.

Acute toxicity refers to single exposure and quick action, while chronic toxicity refers to effects of repeated exposures over a period of time.

Table of Toxicity Categories

Hazard Indicators	Categories			
	I	II	III	IV
Oral LD ₅₀	0 - 50 mg/kg	50 - 500 mg/kg	500 - 5,000 mg/kg	5,000 (+) mg/kg
Inhalation LC ₅₀	0 - 0.2 mg/l.	0.2 - 2 mg/l.	2 - 20 mg/l.	20 (+) mg/l.
Dermal LD ₅₀	0 - 200 mg/kg	200 - 2,000 mg/kg	2,000 - 20,000 mg/kg	20,000 (+) mg/kg
Eye effects	Corrosive: Corneal opacity not reversible within 7 days	Corneal opacity reversible within 7 days: irritation persisting for 7 days	No corneal opacity. Irritation reversible within 7 days.	No irritation
Skin effects	Corrosive	Severe irritation at 72 hours	Moderate irritation at 72 hours	Mild or slight irritation at 72 hours
Signal Words/ Symbol	Danger/Poison: in large boldfaced letters and usually accompanied by skull and crossbones symbol.	WARNING	CAUTION	CAUTION
Common terms for dosage lethal to human adults (oral)	few drops to 1 teaspoon	1 teaspoon to 2 tablespoons	1 ounce to 1 pint	> 1 pint

Fungicide, Nematicide, and Bactericide Table.

Common Name	Other Names	Classes	Toxicity Category	Acute LD ₅₀ For Rats	
				Dermal (Mg/Kg)	Oral (Mg/Kg)
azoxystrobin	Quadris Heritage Abound	F	III	> 2,000	> 2,000
acibenzolar-S-methyl	Actigard	F	III	> 2,000 (rabbits)	> 5,000
benomyl	Benlate Tersan 1991	F	IV	>10,000 (rabbits)	>10,000
bitertanol	Baycor	F	II (50WP) III (25WP)	>5,000	>5,000
calcium hypochlorite	Magnum HTH	F			
captan	Captan Captec	F	III		9,000
carbon disulfide	carbon bisulfide	N	I	Vapor Toxicity 200 ppm	
carboxin	Vitavax	F	III	>8,000 (rabbits)	3,820
chloroneb	Demosan Proturf Fung. Teremec SP	F	III II	>5,000 (rabbits)	>5,000
(R) chloropicrin	Chloro-pic Larvicide Quasar	F,N	I	Vapor Toxicity	250 20 ppm
chlorothalonil	Bravo Daconil Weather Stik Daconil Ultrex Echo Equus Evade Exotherm Termil Terranil Thalonil	F	II	>10,000 (rabbits)	>10,000 (rabbits)
copper ammonium carbonate	Copper-Count-N	F	III		
copper hydroxide	Champion Kocide Blue Shield	F	III		1,000
copper oxide	Yellow Cuprocide	F	III	>8,000	1,000
copper oxychloride sulfate	COCS Copper A Copro 50 & 53	F	III	>8,000	1,000

Common Name	Other Names	Classes	Toxicity Category	Acute LD ₅₀ For Rats	
				Dermal (Mg/Kg)	Oral (Mg/Kg)
copper sulfate-basic	Copper Sulfate Tribasic Copper Basicop Copper-5-Dust	F	III	1 TWA (Vapor Toxicity)	1,000
copper sulfate-lime	Bordeaux mixture	F	IV		
cymoxanil	Curzate	F			
cyproconazole	Sentinel	F	III	72,000 (rat)	1,000 (rat)
cyprodinil	Vanguard	F	III	> 2,000	> 2,000
cyprodinil + fludioxonil	Switch	F			
copper sulfate pentahydrate	Phyton 27 bluestone	F	I		472
dazomet	Basamid Mylone Micofume	F,N	III		640
dichloran	Botran Chlortran DCNA Sclerban	F	III		>5,000
(R) dichloropropene	Telone II	N	I	Vapor Toxicity 500 ppm	127 - 250
dimethomorph	Acrobat	F			
dimethomorph + mancozeb	Acrobat MZ	F			
dodemorph acetate	Milban	F	III		4,180
dodine	Cyprex Syllit	F	II	>1,500 (rabbits)	1,000
ethazol or etridiazole	Koban Terracoat Terramaster Terrazole Truban	F	II	1,700 (rabbits)	1,077
ethazol + thiophanate-methyl	Banrot	F	I (WP) III (Granule)	2,000 - 4,000 (rabbits)	5,000
(R) ethoprop	Mocap	N	I	2.4 (rabbits)	61.5
(R) fenamiphos	Nemacur	N	I	80 (rabbits)	5
fenarimol	Rubigan	F	III		2,500
fenbuconazole	Indar Enable	F	III		

Common Name	Other Names	Classes	Toxicity Category	Acute LD ₅₀ For Rats	
				Dermal (Mg/Kg)	Oral (Mg/Kg)
fentin hydroxide	Super Tin TPTH triphenyltin hydroxide	F	I	1,600 (rabbits)	156
ferbam	Carbamate	F	IV		>17,000
fixed copper: see copper oxide, copper oxychlor sulfate or copper sulfate					
fludioxonil	Maxim	F			
flutolanil	Prostar	F	IV	>5,000	10,000
formaldehyde	Formalin	F	I	Vapor Toxicity 5	
fosetyl-Al	Aliette	F	III	2,000 (rabbits)	>5,000
fluazinam	Omega	F			
hydrated lime	slaked lime				
iprodione	Chipco 26019 Rovral	F	III	>5,000 (rabbits)	>10,000
kresoxim-methyl	Sovran	F	III	> 2,000	> 5,000
lime sulfur	Orthorix	F	III	caustic	medium toxicity
mancozeb	Dithane DF Rainshield Dithane M-45 Fore Manex II Manzate 200 Penncozeb	F	IV	>15,000	11,200
maneb	Maneb 80 Maneb Plus Zinc F4 Manex	F	IV		7,990
mefenoxam	Apron XL Ridomil Gold EC Subdue MAXX Ultra Flourish	F	II		
mefenoxam + chlorothalonil	Ridomil Gold Bravo Flouranil	F	II		
mefenoxam + copper	Ridomil Gold Copper	F	II		
mefenoxam + mancozeb	Ridomil Gold MZ	F			
(R) metam-sodium	Busan 1020 Vapam S.M.D.C.	F,N	II		1,700 - 1,800
(R) methyl bromide	Brom-O-Gas Meth-O-Gas Profume	F,N	I	Vapor Toxicity 200 ppm	214
metiram	Polyram	F	IV		>10,000

Common Name	Other Names	Classes	Toxicity Category	Acute LD ₅₀ For Rats	
				Dermal (Mg/Kg)	Oral (Mg/Kg)
myclobutanil	Nova Eagle	F	II		
oxamyl	Vydate L	N	I	2,960 (24% liquid) (rabbits)	5.4 (unformulated compound)
oxycarboxin	Plantvax	F	III	>16,000 (rabbits)	>2,000
pentachloronitrobenzene (PCNB)	Terraclor quintozone	F	III	5,000	5,000
piperalin	Pipron	F	III		2,500
propamocarb hydrochloride	Banol Previcur Flex	F	III	>3,900 (rabbits)	8,600
propiconazole	Alamo Banner Banner MAXX PropiMax Orbit Tilt	F	III		1,517
pyraclostrobin	Cabrio Headline	F			
quaternary ammonium chloride	Consan Physan 20	F			
quintozone	Brassicol PCNB Terraclor	F	III	>4,000	1,700
quintozone + ethazol	Terra-Coat Terraclor Super X	F	III (G) II (WP) I (EC)	(See individual ingredients)	
sodium hypochlorite	Agclor 310 bleach	F,B			
sodium o-phenylphenate	Deccosol 122	F	III		1,160
streptomycin sulfate	Agri-strep Agrimycin Phytomycin	B	III		9,000
sulfur	Brimstone Magnetic 6 Nutonex Wettable Sulfur Thiolux Thiovit	F	III		low
TCMTB	Busan 30A Busan 72A	F	II		1,590
tebuconazole	Elite Folicur	F			

Common Name	Other Names	Classes	Toxicity Category	Acute LD ₅₀ For Rats	
				Dermal (Mg/Kg)	Oral (Mg/Kg)
thiabendazole	Arbotect Mertect Mertect 340-F TBZ	F	III		3,100
thiophanate	Domain Cleary 3336 Topsin E	F	III		>15,000
thiophanate-methyl	Fungo 50 Topsin M	F	III		7,500
thiophanate-methyl + mancozeb	Duosan Zyban	F	III		7,500
thiram	Tersan 75 Thiram 42-S Thiram Granuflo Spotrete	F	III		780
triadimefon	Bayleton Strike	F	II	>5,000	1,020 - 1,855
triadimenol	Baytan	F	II	>5,000	689 - 752
trifloxystrobin	Flint	F	III	> 2,000 (rabbits)	> 5,000
triflumizole	Procure Terraguard	F			
triforine	Triforine Funginex	F	III	>10,000	>16,000
triphenyltin hydroxide - See fentin hydroxide.					
vinclozolin	Ornalin Ronilan Vorlan	F	III	>2,000	>10,000
vorlex	Vorlex	F,N	II	961	538
ziram	Ziram 76	F	III	>2,000	1,540
zoxium + mancozeb	Gavel	F			

DISCONTINUED

Fungicides, Nematicides and Bactericides

Common Name	Other Names	Class	Toxicity Category	Acute LD ₅₀ For Rats	
				Dermal (Mg/Kg)	Oral (Mg/Kg)
cadmium chloride	Caddy	F	II	NA	NA
cadmium succinate	Cadminate	F	II	200 (rabbits)	660
captafol	Difolatan	F	II		6,200
cycloheximide	Actidione PM Actidione TGF Actidione-Thiram	F	I		2
dichlone	Phygon Quintar	F	III	5,000	1,300
dichloropropene- dichloropropane	D-D Soil Fumigant Nemafene Vidden-D	F,N	II	2,100 (rabbits) Vapor Toxicity 500 ppm	250 - 500
dinocap	Karathane Mildex	F	III		980
fenaminosulf	Dexon (former name) Lesan, Diazoben	F	I	>100	75
(R) fensulfothion	Dasanit	N	I	3 - 30	2 - 10
folpet	Phaltan	F	IV	>22,600 (rabbits)	>10,000
glyodin		F	III		4,600 - 7,600
mancozeb + dinocap	Dikar	F	IV		>5,000
parinol	Parnon	F	III		5,000
thiram	Arasan	F	III		780
zineb	Zineb	F	IV	>2,500	>5,200

Precautionary Statement

To protect people and the environment, pesticides should be used safely.

This is everyone's responsibility, especially the user.

Read and follow label directions carefully before you mix, apply store or dispose of a pesticide.

According to laws regulating pesticides, they must be used only as directed by the label.

Persons who do not obey the law will be subject to penalties.

Disclaimer Statement

Pesticides recommended in this publication were registered for the prescribed uses when printed. Pesticide regulations are continuously reviewed.

Should registration or a recommended pesticide be canceled, it would no longer be recommended by The University of Tennessee.

Use of trade or brand names in this publication is for clarity and information; it does not imply approval of the product to the exclusion of others that may be of similar, suitable composition, nor does it guarantee or warrant the standard of the product.

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Agricultural Extension Service Charles L. Norman, Dean